

to the St. Mary's Hospital Medical School, and is also examiner in physiology to the Royal College of Physicians and to the National University of Ireland. He has published numerous papers on physiological subjects, and is the joint author of a text-book of experimental physiology.

MR. IVOR BACK, assistant surgeon to St. George's Hospital, lecturer on and teacher of operative surgery in the Medical School, St. George's Hospital, and Prof. D. H. Macgregor, professor of economics in the University of Leeds, have been elected to A.K. travelling fellowships. Mr. E. A. Benions, fellow and lecturer of St. John's College, Cambridge, has been elected to the fellowship rendered vacant by the resignation of Prof. I. Gollancz in December last.

THE Berlin correspondent of *The Morning Post* states that the Senate of the City of Hamburg has passed a resolution recommending that the Colonial Institute established there some years ago to train men for the Colonial Service shall be developed into an independent institution. This is regarded as the first official step in the movement to found a university in Hamburg. The city already devotes 100,000l. annually towards the cost of its scientific institutions, and the project evidently is to merge the latter into one university, though this word is as yet avoided.

PROF. H. E. ARMSTRONG's old students at the Central Technical College have arranged to mark their appreciation of the services he has rendered to science, industry, and education for upwards of a quarter of a century, by entertaining him at a banquet to be held at the Hotel Cecil, at 7 p.m. on Saturday, May 13. It has further been suggested that either an illuminated address or an album signed by his old students should be presented to him as a memento of the occasion. The gathering promises to be an unusually large one, and will include many of Prof. Armstrong's friends as well as old students. The chairman of the committee is Prof. W. J. Pope, F.R.S., and the vice-chairman, Mr. Maurice Solomon. Applications for tickets should be sent to one of the honorary secretaries, Mr. F. F. Renwick, Norland House, Avenue Road, Brentwood, Essex, or Mr. G. W. Tripp, 58 Little Heath, Charlton, Kent.

It is stated in *The Pioneer Mail* that efforts are being made by the promoters of the proposed University of India and the Hindu University to amalgamate the two schemes and to work jointly rather than separately. The suggestion is that the University should be known as the University of Benares. In the beginning the University would only be an examining body like the Government universities in India, but the promoters trust that it will later on become a teaching body, and so fulfil the true ideal of university life. It is estimated that with the amalgamation of the two proposed universities the total funds available would come to 50 lakhs. It is further suggested that the King should be asked to lay the foundation of the Muslim University and the University of Benares after the Delhi Durbar.

ATTENTION has been directed already in these columns to the movement which has been inaugurated to secure the more efficient education of Europeans and Eurasians in India. An influentially signed appeal to the people of this country for a fund for this object of not less than 250,000l. appeared in *The Times* of May 1. An All-India Committee, representing the schools for Europeans and Eurasians established in India by the various religious organisations, has been formed, and it proposes with the fund to be raised :—(i.) to provide adequate salaries for teachers; (ii.) to increase the number of qualified teachers; (iii.) to provide facilities in India for training teachers; (iv.) to bring out qualified teachers to India until the training colleges to be founded shall have made such a course unnecessary; (v.) to provide opportunities for university education for promising students; (vi.) to improve the curricula of existing schools, especially in respect of science and manual training; (vii.) to found scholarships to assist deserving students at different stages of their education. A gift of 50,000l. has been received, and another gift of 5000l. has been contributed to the general fund in England. Further contributions may be sent to Sir Capel Wolseley, Bt., 157, 158, St. Stephen's House, Westminster, S.W., hon. treasurer of the fund.

ON April 5 the Governor of Bombay, Sir G. Clarke, laid the foundation-stone of the Central Science Institute and the Cowasjee Jehangir Hall in Bombay. In the course of his address, which was reported in *The Pioneer Mail*, the Governor said the mill owner and merchant want men accustomed to accurate thinking and capable of bringing practical consideration to bear upon realities. To both, the possessor of literary culture imperfectly assimilated is of no value, as he lacks some essential qualifications even if his literary attainments were more solid. Both look forward to the developments of the natural resources of India and the consequent creation of industries which await the diffusion of practical science among Indians. The example of Japan is frequently held up to the people of India, but the moral is not grasped. The Japanese instinctively absorbed western science and proceeded to turn it to account, and as soon as they could stand alone they showed that they could rival their European instructors in carrying on scientific progress. In India, scientific habit of thought is rare. Even in Bombay, where malaria could easily be stamped out, the proved results of harbouring the mosquito have not sufficed to carry conviction in many cases, and the spread of infection continues. Direct and indirect need of scientific training face the people of India at every turn. A patient investigator is required who will solve for India problems upon which great industries depend, problems many of which are purely Indian. A constructive power is wanted which depends upon training, that deals with forces and with facts, not with abstract speculation. The need is felt every day of the full recognition of the reign of law in the natural world and of the inexorable relations between cause and effect now widely ignored. An antidote to mere book learning is wanted, a faculty which can concentrate itself upon the practical side of the questions of the day and can discern fallacies of rhetoric, preferring action to talk and practical achievement to visions. All this and much more can be conferred upon India only by sound scientific training widely diffused.

SOCIETIES AND ACADEMIES.

LONDON.

Mathematical Society, April 27.—Dr. H. F. Baker president, in the chair.—Lieut.-Colonel A. Cunningham: The number of primes of given linear forms.—H. Hilton: The properties of certain linear homogeneous substitutions.—W. P. Milne: A symmetrical method of generating cubic curves by apolar pencils.—Prof. M. J. M. Hill: The proofs of the properties of Riemann's surfaces discovered by Lüroth and Clebsch.—G. N. Watson: The solution of the homogeneous linear difference equation of the second order (second paper).—G. B. Mathews: A cartesian theory of complex geometrical elements of space.

Zoological Society, April 25.—Dr. S. F. Harmer, F.R.S., vice-president, in the chair.—Dr. W. Nicoll: Three new trematodes from reptiles, from material received from the society's prospectorium. The specimens were interesting as forming an important addition to our knowledge of the large variety of forms which inhabited the air-passages and anterior coil of the alimentary canal of reptiles and batrachians.—Dr. R. T. Leiper: Some parasitic nematodes from Tropical Africa. The author gave a brief description of a number of new genera. The paper was based on helminthic material he had collected during a visit to East Africa, Uganda, and the Sudan in 1907, and on material sent to him by members of the Colonial Medical Service.—Oldfield Thomas: Mammals collected in southern Shen-si, central China, by Mr. Malcolm Anderson, for the Duke of Bedford's exploration of eastern Asia. The region explored was in the Great Pe-ling (or Tsin-ling) range, that divides northern from southern China, many of the specimens coming from the sacred mountain Tai-pe-i-san, where several of the most interesting forms were obtained. Of these, by far the most striking was a new species of takin (*Budorcas*), readily distinguishable by its uniform golden buffy colour from the Sze-chuan species (*B. tibetanus*). In the adult of this fine animal the coloration was wholly buffy, the darkening of the ears, dorsal line, hinder back and limbs found in

B. tibetanus being absent, and there was scarcely a trace even of the dark facial patch so prominent in that animal. The new species was proposed to be called *Budorcas bedfordi*, and female No. 2190 was selected as the type. In all, the collection contained 160 specimens, referable to thirty species.

PARIS.

Academy of Sciences, April 18.—M. Armand Gautier in the chair.—The president announced the death of Jean Bosscha, correspondant in the section of physics.—Ph. van Tieghem: The place of the Triuraceæ in the class of Monocotyledons. The author is of opinion that this order should be suppressed, reducing the class of the Monocotyledons to two orders only.—Paul Sabatier and A. Mailhe: The catalytic esterification of the alcohols by the fatty acids: the case of formic acid. Titanium oxide is preferable to thorium oxide as a catalytic agent when working at lower temperatures, such as are required when formic acid is used. With this oxide the esterification limit of 65 per cent. is reached at 150° C., an excess of the alcohol being employed.—C. Bratu: The exponential integral equation.—Maurice Fréchet: The notion of the differential.—M. d'Occagne: A nomogram for the determination of the spaces described as a function of the time whilst a ship passes from a velocity V_0 to velocity V_1 .—H. Larose: The problem of the cable limited in two directions.—M. Duseaud: New uses for low voltage bulbs. Sixteen lamps (10 volts, 1 ampere) are fixed on a rotating disc in such a manner that each lamp receives 20 volts and 1.5 ampere during a fraction of a second. With the expenditure of 30 watts a light apparently steady is obtained equivalent to 10,000 candles, or the same light as an arc consuming 6000 watts.—Guillaume de Fontenay: The photographic reproduction of documents by reflection.—L. Moreau and E. Vinet: The elimination of lead arsenate from grapes in the process of wine-making.—Em. Bourquelot and M. Bridel: The action of invertin on the polysaccharides derived from levulose.—P. Sisley and Ch. Porcher: The elimination of colouring matters from the animal organism. All the observations lead to the conclusion that the microbial flora takes part in the chemical processes of reduction of the azoic colouring matters.—Hermann von Hering: The history of the terrestrial fauna of the Brazilian forests.—Armand Renier: The discovery in the Belgian Westphalian of imprints of *Calamostachys Ludwigi*.—François Favre: The relation between the partitions of *Oppelia* Lias.

DIARY OF SOCIETIES.

THURSDAY, MAY 4.

ROYAL SOCIETY, at 4.—Election of Fellows; at 4.30.—Motor Localisation in the Brain of the Gibbon correlated with a Histological Examination: Dr. F. W. Mott, F.R.S.; Dr. E. Schuster, and Prof. C. S. Sherrington, F.R.S.—Some Phenomena of Regeneration in Sycon, with a Note on the Structure of its Collar-cells: J. S. Huxley.—Cancerous Ancestry and the Incidence of Cancer in Mice: Dr. J. A. Murray.—Immunisation by means of Bacterial Endotoxins: Dr. R. T. Hewlett.—On a Method of Disintegrating Bacterial and other Organic Cells: J. E. Barnard and Dr. R. T. Hewlett.

ROYAL INSTITUTION, at 3.—The Optical Properties of Metallic Vapours: Prof. R. W. Wood.

LINEAN SOCIETY, at 8.—On John Vaughan Thompson and his Polyzoa, and on Vaunthompsonia, a Genus of Symphoda: Rev. T. R. R. Stebbing, F.R.S.—On Polytrema and some Allied Genera: Prof. Sidney J. Hickson, F.R.S.—Observations on some New and Little-known British Rhizopods: J. M. Brown.—The British Museum Collection of Blattidæ enclosed in Amber: R. Shelford.—Freshwater Algae collected in the South Orkneys by Mr. R. N. R. Brown: Dr. F. E. Fritsch.

RÖNTGEN SOCIETY, at 8.15.—The Use of Radium in Malignant Growths: C. W. Mansell Moullin.—Rapid Radiography: Ed. S. Worrall.

FRIDAY, MAY 5.

ROYAL INSTITUTION, at 9.—New Organic Compounds of Nitrogen: Prof. M. O. Forster, F.R.S.

GEOLISTS' ASSOCIATION, at 8.—The Special Features of Alpine Scenery and the part played by Ice in their Origin: Prof. E. J. Garwood.

MONDAY, MAY 8.

ROYAL SOCIETY OF ARTS, at 8.—Rock Crystal: its Structure and Uses (Lecture II.): Dr. A. E. H. Tutton, F.R.S.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Foundation and Development of British Guiana from Unpublished Documents: J. A. J. de Villiers.

VICTORIA INSTITUTE, at 4.30.—A Life's Contribution to the Harmony of Christianity, Philosophy, and Science: Prof. F. F. Roget.

TUESDAY, MAY 9.

ROYAL INSTITUTION at 3.—The Institute of France: J. E. C. Bodley.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—Some Saxon Bones from Folkestone: F. G. Parsons.—Further Notes on French Dolmens: A. L. Lewis.

NO. 2166, VOL. 86]

ZOOLOGICAL SOCIETY, at 8.30.—On the Palatability of some British Insects. (Experiments made in the Society's Gardens with Arthropods (chiefly Insects) and Molluscs, and Notes on the significance of Mimetic resemblances): R. I. Pocock.—Contributions to the Morphology of the Group Neritoidea of Aspidobranch Gastropods. Part II. The Helicinidae: Prof. G. C. Bourne, F.R.S.—On the Distribution in the Pacific of the Avian Family Megapodidae: J. J. Lister, F.R.S.

WEDNESDAY, MAY 10.

ROYAL SOCIETY OF ARTS, at 8.—Beet Sugar Factories: Hal Williams. GEOLOGICAL SOCIETY, at 8.—The Lower Carboniferous Succession in the North-west of England: Prof. E. J. Garwood.—Palaeontological and Lithological Sequence in the Lower Carboniferous of Burrington Combe: Prof. S. H. Reynolds and Dr. A. Vaughan.

THURSDAY, MAY 11.

ROYAL SOCIETY, at 4.30.—Probable Papers: On a Method of making Visible the Paths of Ionising Particles through a Gas: C. T. R. Wilson, F.R.S.—The Vertical Temperature Distribution in the Atmosphere over England, and some remarks on the General and Local Circulation: W. H. Dines, F.R.S.—On some Mineral Constituents of a Dusty Atmosphere: Prof. W. N. Hartley, F.R.S.—The Path of an Electron in Combined Radial Magnetic and Electric Fields: Dr. H. S. Allen.—On the Absolute Measurement of Light—a Proposal for an Ultimate Light Standard: Dr. R. A. Houston.—On Harmonic Expansions: Prof. A. C. Dixon, F.R.S.

ROYAL INSTITUTION, at 3.—The Optical Properties of Metallic Vapours: Prof. R. W. Wood.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Driving of Winding Engines by Induction Motors: H. J. S. Heather.

MATHEMATICAL SOCIETY, at 5.30.—Exhibition of a Model of a Deformable Octahedron: G. T. Bennett.—The Scattering of Light by a Large Conducting Sphere (Second Paper): J. W. Nicholson.

FRIDAY, MAY 12.

ROYAL INSTITUTION, at 9.—Biology and the Kinematograph: Prof. W. Stirling.

ROYAL ASTRONOMICAL SOCIETY, at 5.

MALACOLOGICAL SOCIETY, at 8.—Some Remarks on the Nomenclature of the Veneridae: Dr. W. H. Dall.—Description of a New Species of Conus from South Africa: G. B. Sowerby.—A Modification in the Form of a Shell (*Siphonaria Algesiræ*) apparently due to Locality: Rev. A. H. Cooke.

PHYSICAL SOCIETY, at 8.—Stream Lines Past the Elliptic Cylinder and Magnetic Interpretation: Sir George Greenhill and Col. R. E. Hippisley.—The Method of Constant Rate of Change of Flux as a Standard for Determining Magnetisation Curves of Iron: J. T. Morris and T. H. Langford.—Demonstration of an Electric Thermo Regulator: Prof. H. L. Callendar.

CONTENTS.

	PAGE
The Golden Bough. By A. E. Crawley	305
An Indian Forest Flora	306
Orders of Infinity. By T. J. I'a. B.	307
Maya Astronomy	307
A Monograph of Dendrobium. By A. B. R.	308
Anthropology	308
Some Books on Chemistry. By T. M. L.	309
Our Book Shelf	310
Letters to the Editor:—	
Calature Wood.—David Hooper	311
<i>Anguillula glutinis</i> —Paste Eels.—John Phin	312
The Fox and the Fleas.—Prof. Bohuslav Brauner	312
Belladonna Plaster for Bee-stings.—Frank H. Perrycoate	312
The Total Solar Eclipse, April 28, 1911. By Charles P. Butler	313
Standard Bread. (Illustrated)	313
The Home Life of the Shans. (Illustrated)	314
Belgium's Contribution to the Plaice Problem. By Dr. William Wallace	316
Notes	317
Our Astronomical Column:—	
New Minor Planets	322
Nova Lacertæ	322
Halley's and Faye's Comets	322
Proper Motions in Sun-spot Groups	323
The Ratio between the Diameter of a Photographic Image and Exposure	323
Photographic Measures of Stellar Temperatures and Diameters	323
Canadian Observer's Handbook for 1911	323
The Imperial Education Conference. By G. F. D. Bird Notes. By R. L.	323
Optically Active Alcohols	325
The Teaching of Science in Secondary Schools	326
The Science Museum and the Geological Museum	328
Travelling at High Speeds on the Surface of the Earth and above it. (With Diagrams.) By Prof. H. S. Hele-Shaw, F.R.S.	330
University and Educational Intelligence	336
Societies and Academies	337
Diary of Societies	338